

CLAIMS

WHAT IS CLAIMED IS:

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1. A handle, comprising:  
a core having a substantially rigid portion;  
an outer covering that at least partially covers the core;  
a heater disposed at least partially between the core and the outer  
10 covering, the heater including:
  - i) a cushion configured as a layer;
  - ii) a separator configured as a layer that is substantially  
coextensive with the cushion; and
  - 15 iii) a conductor at least partially between the cushion and the  
separator.

2. A handle as in claim 1, wherein the heater includes a plurality of  
protrusions corresponding to spokes of the handle.

- 20 3. A handle as in claim 1, wherein the conductor is in a lay-wire  
configuration between the cushion and the separator and the cushion is  
formed of a compressed polyurethane foam material.

- 25 4. A handle as in claim 3, wherein the conductor includes three  
distinct zones.

5. A handle as in claim 3, wherein the conductor is at least partially  
formed of strands that are formed of a metal alloy of copper and between  
about 1 % and about 10 % nickel.

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6. A handle as in claim 5, wherein the conductor includes about 5  
to about 7 strands and a diameter of each of the strands is between about  
0.007 mm and about 0.011 mm.

7. A handle as in claim 1, wherein the separator has a heat transfer coefficient between about 0.10 W/mK and about 2.0 W/mK and the cushion has a heat transfer coefficient between about 0.005 and about 0.2 W/mK.

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8. A handle as in claim 7, wherein the cushion is closer to the core than the separator and a portion of the conductor is folded over on itself and twisted at a connection of the heater.

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9. A steering handle for a transportation vehicle, comprising:  
a core formed of a rigid member that is at least partially covered with a polymeric material;

an outer covering that substantially entirely covers the core;

a heater disposed between the core and the outer covering, the heater

15 including:

i) a cushion, the cushion being provided as a layer of foamed polymeric material having at least one elastomer;

ii) an separator, the separator being provided as a fabric layer that is substantially coextensive with the cushion; and

20 iii) a conductor at least partially between the cushion and the separator

wherein the heater can elongate about 15% of its own length prior to any significant damage.

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10. A handle as in claim 9, wherein the heater includes a plurality of protrusions corresponding to spokes of the handle.

11. A handle as in claim 9, wherein the conductor is in a lay-wire configuration between the cushion and the separator and the cushion is  
30 formed of a compressed polyurethane foam material.

12. A handle as in claim 9, wherein the conductor includes three distinct zones.

13. A handle as in claim 9, wherein the conductor is at least partially formed of strands that are formed of a metal alloy of copper and between about 1 % and about 10 % nickel.

5 14. A handle as in claim 9, wherein the separator has a heat transfer coefficient between about 0.10 W/mK and about 2.0 W/mK and the cushion has a heat transfer coefficient between about 0.005 and about 0.2 W/mK.

10 15. A handle as in claim 9, wherein the cushion is closer to the core than the separator and a portion of the conductor is folded over on itself and twisted at a connection of the heater.

15 16. A handle as in claim 9, wherein the conductor includes about 5 to about 7 strands and a diameter of each of the strands is between about 0.007 mm and about 0.011 mm

17. A steering wheel for an automotive vehicle, comprising:  
a core formed of a rigid member that is at least partially covered with a  
20 polymeric material, the core having a substantially circular configuration;  
an outer covering that substantially entirely covers the core, the outer covering being formed of leather;  
a heater disposed substantially entirely between the core and the outer covering, the heater including:

- 25 i) a cushion, the cushion being provided as a layer of polymeric material having at least one elastomer;
- ii) a separator, the separator being provided as a fleece layer that is substantially coextensive with the cushion, the separator being attached to the cushion with an adhesive; and
- 30 iii) a conductor substantially entirely between the cushion and the separator, the conductor being formed of one singular continuous conductive element wherein the conductive element is formed of a plurality of copper wire strands that are woven together.

18. A wheel as in claim 17, wherein the conductor is in a lay-wire configuration between the cushion and the separator and the conductor includes three distinct zones.

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19. A wheel as in claim 18, wherein the separator has a heat transfer coefficient between about 0.10 W/mK and about 2.0 W/mK and the cushion has a heat transfer coefficient between about 0.005 and about 0.2 W/mK.

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20. A wheel as in claim 19, wherein the cushion is closer to the core than the separator and a portion of the conductor is folded over on itself and twisted at a connection of the heater.